

عنوان مقاله:

Comparative evaluation of parasitic removal in municipal wastewater using constructed wetland and extended aeration-activated sludge system in full scale: Kermanshah province, Iran

محل انتشار:

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خلاصه مقاله:

One of the most significant factors when reusing wastewater in agriculture is microbial quality. The present study assessed the efficiency of the Sarpol-e-Zahab and Paveh treatment plants, an extended aeration-activated sludge system and that of Qaser-e-Shirn, a constructed wetland, in removing protozoan cysts and parasite ova from municipal wastewater for the purposes of reuse in agricultural irrigation. In this six-month study, samples were collected weekly from influents and effluents of three wastewater treatment plants (WTPs). A total of 144 samples were examined by applying a modified Bailenger method using the McMaster counting slide with a pore volume of 3.0 ml. Data were analyzed using SPSS version 16. The results revealed that the mean removal efficacies of parasite ova and protozoan cysts for the constructed wetland were 99.7–100% and 100%, treatment plant of Paveh 97.5–100% and 100%, treatment plant of Sarpol-e-Zahab 99–100% and 100% respectively. There WTPs showed significant differences in their removal parameters ($P < 0.001$). The results showed both extended aeration-activated sludge systems had adequate effectiveness for parasitic removal, but the constructed wetland was significantly more effective than the extended aeration-activated sludge system. The effluent quality of all WTPs was consistent with (Engelberg standards (≥ 1 nematode egg per liter).

کلمات کلیدی:

,Extended aeration-activated sludge, Constructed wetland, Protozoan cysts, Parasite ova, Kermanshah province

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